

The Effect Of Teacher Habit Formation On Preschoolers' Activity Levels

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Physical Inactivity is arguably the greatest public health crisis of the 21st century [1], and although the benefits of physical activity (PA) are well established, most children fail to meet PA recommendations [2,3]. Establishing PA behaviors in the early years may increase adherence in PA patterns and health benefits across childhood, adolescence, and adulthood [4].

Therefore, interventions aimed at increasing and maintaining PA are essential to curb this public health crisis, particularly in young children. Only 50% of preschool age children meet the physical activity recommendations for their age. Children from high socioeconomic status, urban areas, and preschool age boys are more likely than others to meet these recommendations [5].

Data also shows that preschool years may be a critical period for the development of obesity later in life [6]. Obesity, diabetes, and heart disease disproportionately affect individuals from low-income families and are evident even in young children. This health disparity may be ameliorated, in part, by increasing PA at an early age [7].

Physical inactivity habits begin in childhood and continue to develop with age. As with most habits, it is important that the establishment of PA behaviors begin in the early years of a child's life, as this might promote positive trajectories in the patterns of PA throughout childhood, adolescence, and adulthood.

Research shows that teacher-led interventions aimed at increasing PA are effective in the short term but tend to lack long-term success. Preschool teachers serve as the

foundation of PA during the preschool years, and teachers' behaviors and PA practices are important to target. Establishing teachers' PA habits may be a sustainable solution to provide PA opportunities in young children.

Researchers gathered height, weight, sex, PA, fundamental motor skills (FMS), and body composition fat mass (FM) and fat free mass (FFM) of 46 preschoolers. PA was assessed with accelerometers placed on preschoolers' wrists during the school day. The preschoolers' baseline FMS assessed object manipulation, locomotion, and stationary skills.

Teachers' habit formation was assessed with the automaticity index in relation to implementing certain types of physical activities, both inside and outside, throughout the day.

Linear regressions examined the relationship between baseline PA levels and body composition to stationary, locomotor, and object manipulation skills. At the end of the 8 week intervention, all measures were retested to see if any improvements had been made.

Our initial results show that body composition in terms of FFM are associated with higher levels of FMS. In particular, stationary and object manipulation scores are associated with greater levels of FFM. Currently, we are analyzing changes in PA, FMS, and body composition over the course of the intervention, as well as the role of teachers' PA automaticity.

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Fig. 1. Assessing how well a child can walk up a set of steps.

Table 1. Participant Data

Variable	Mean	Standard Deviation
Weight	15.56 kg	2.08 kg
Height	100.41 cm	5.70 cm
BMI %	15.50 kg/m ²	1.15 kg.m ²
Body Fat %	20.87%	3.01%
Fat Mass	3.34 kg	.83 kg
Fat Free Mass	12.48 kg	1.50 kg
Stationary Skills	48.16	6.46
Locomotor Skills	145.8	27.73
Object Manipulation Skills	34.88	6.46
Gross motor Quotient	96.32	12.57

Notes: SS, LS, OMS, are means of raw scores which are then used to calculate GMQ. There is not a unit of measure for these items.

Statement of Research Advisor

This project is one of the few studies to examine body composition in young children, as well as, the roles of active play, physical activity and fundamental motor skills in childhood obesity. Furthermore, examining teacher’s automaticity in providing physical activity opportunities as the mechanism of change provides a method for sustainable solutions to increase physical activity.

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Authors Biography



Camille M. Preston is a senior student pursuing a B.S. in Neuroscience at Auburn University. Throughout this project, she has assisted in the data collection for physical activity, weight, height, teacher automaticity, and body composition. She has also assisted in observing teacher and preschoolers’ physical activity practices in the classroom.



Katherine E. Spring is a Doctoral Student in the Exercise Adherence and Obesity Prevention Lab at Auburn University. Her research focuses on the effects of physical activity and play have on physical, behavioral and learning outcomes in young children. These evidence-based outcomes are used to design and implement based interventions at the individual, interpersonal and/or organizational level of the socioecological model.



Danielle D. Wadsworth is an Associate Professor at Auburn University, and the director of the Exercise Adherence and Obesity Prevention Lab. Her research focuses on understanding the psychological, social, environmental, and behavioral underpinnings of long-term exercise behavior across the lifespan and translating these findings to effective evidence-based interventions.